

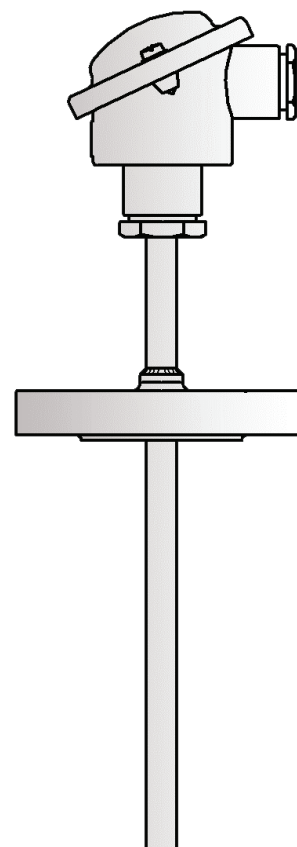


AP 108

This sensor is suitable for temperature range $-200+550^{\circ}\text{C}$, primarily for measurements carried out in tanks and pipelines, in all these places where mounting of a threaded process connection would be problematic. The temperature sensor design (replaceable measuring insert) is suitable for various industrial applications. Replacement of the measuring insert does not cause the technological installation damage. Spring-loaded insert ensures an excellent connection with the bottom of the sensor thermowell.

Specification

Temperature range / sensing element		
$-200+550^{\circ}\text{C}$	Pt100	class B
$-40+550^{\circ}\text{C}$	K, J	class 2
Measuring insert		
– 2-, 3-, 4-wire connection (for Pt100)		
– 2-, 3-wire connection (for 2xPt100)		
Thermowell		
– material: steel 1.4541		
– flanged, PN16, DN 20, 25 with lap B1 acc. to PN-EN 1092		
– diameter [mm]: 11		
– length [mm]: 80 ± 2000		
Connection head		
– BA, IP55, $-40\pm 100^{\circ}\text{C}$		
Flange		
– DN20, DN25		



Other parameters acc. to requirements

Options

Temperature transmitter application

Temperature transmitter with standard $4\pm 20\text{mA}$, $0\pm 10\text{V}$ output signals and with the HART or PROFIBUS communication protocols can be mounted in the connection head. Transmitter installation is carried out directly on the measuring insert (in place of a terminal block) or in the high cover connection head (solution used to enable installation of two transmitters).

Local display application

The temperature sensor can be equipped with the connection head enabling the local LED display installation. The local display operates in current loop $4\pm 20\text{mA}$. This version makes the local temperature reading and transmission of the analogue signal possible.

ATEX design

For explosion zones adequate sensor constructions are available:

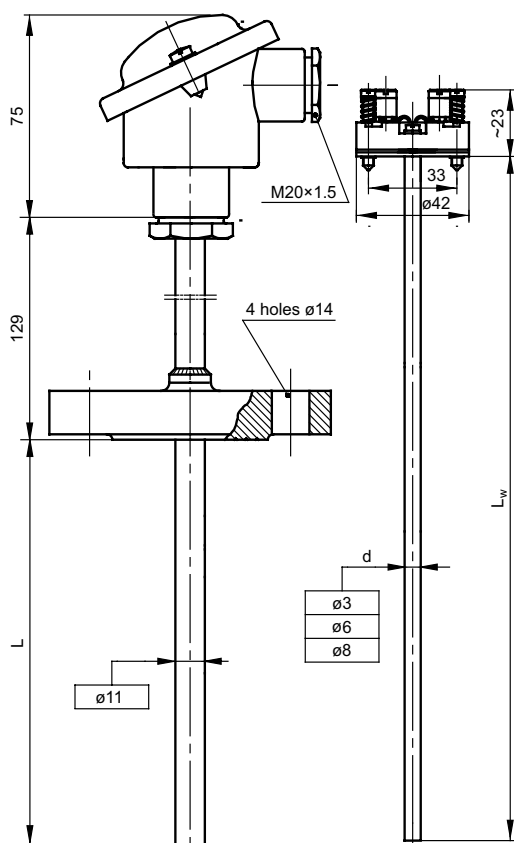
- intrinsically safe Exi
- flameproof Exd

These designs possess EC-Type Examination Certificate in compliance with 94/9/EC(ATEX) directive.

Non-standard design

Immersion length, process connection, shape and material of the thermowell, connection head type and measuring insert parameters can be customized per client request.

Calibrations performed by Limatherm Sensor Sp. z o.o. are confirmed with the Calibration Certificate of the Accredited Laboratory for Temperature Measurements.



Standard length

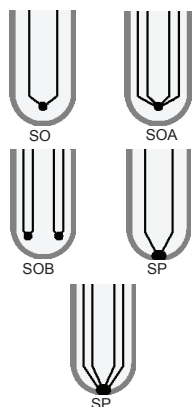
Immersion length L [mm]	Measuring insert length L _w [mm]
100	255
160	315
250	405
400	555

Maximum pressure

Length L [mm]	Maximum pressure [MPa]
do 160	11.8
do 250	6.9
do 400	4.4

Values specified on the basis of the maximum speed of steam flow: 25 m/s and water flow: 3 m/s with thermowell standard diameter 9 mm.

Thermocouple hot junction types



Tolerance for classes of sensors with resistors Pt acc. to PN-EN 60751

Sensor classes	Range of application [°C]	Formula for calculating acceptable deviations [°C]
AA	-50÷250	$T = \pm(0,10 + 0,0017 t)$
A	-100÷450	$T = \pm(0,15 + 0,002 t)$
B	-196÷600	$T = \pm(0,3 + 0,005 t)$

|t| - absolute value of temperature

Measurement circuit

1 x Pt100			2 x Pt100			1 x TC	2 x TC
2-wire	3-wire	4-wire	2-wire	3-wire	4-wire	2-wire	2-wire
✓	✓	✓	✓	✓	x	✓	✓

Tolerance for thermocouple classes acc. to PN-EN 60584

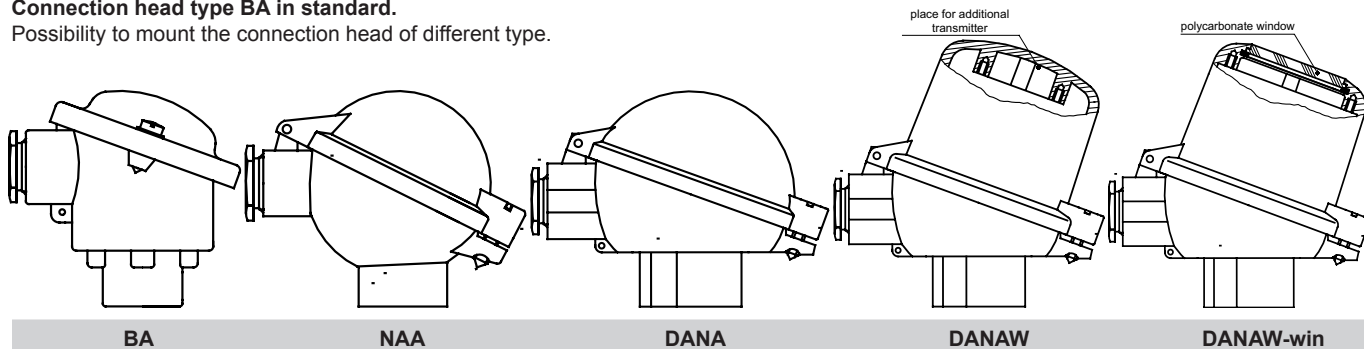
Thermocouple type	Class 1		Class 2	
	Range of application [°C]	Tolerance [°C]	Range of application [°C]	Tolerance [°C]
J Fe-CuNi	from -40 to +375 from +375 to +750	±1,5 ±0,004 t	from -40 to +333 from +333 to +750	±2,5 ±0,0075 t
K NiCr-NiAl	from -40 to +375 from +375 to +1000	±1,5 ±0,004 t	from -40 to +333 from +333 to +1200	±2,5 ±0,0075 t

|t| - absolute value of temperature

Connection head types

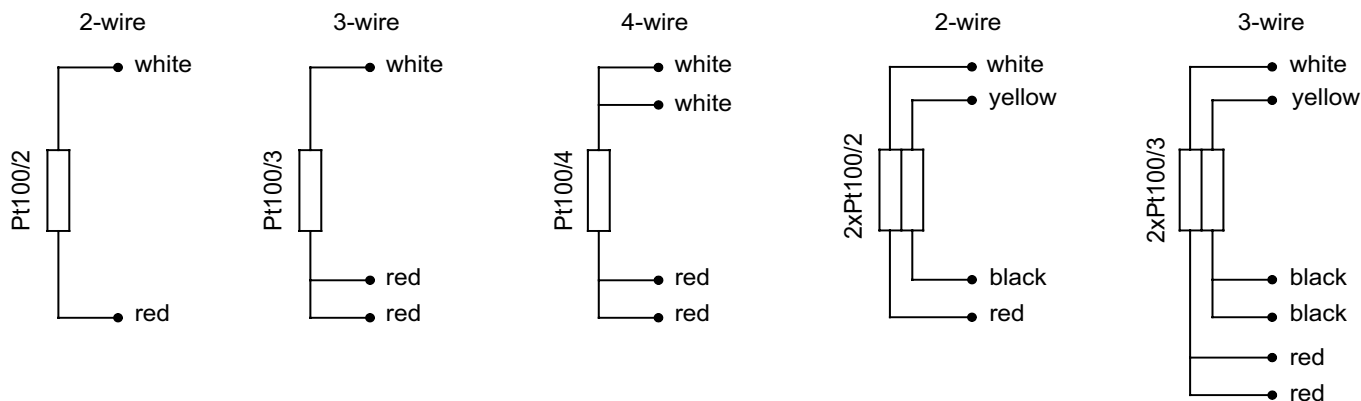
Connection head type BA in standard.

Possibility to mount the connection head of different type.

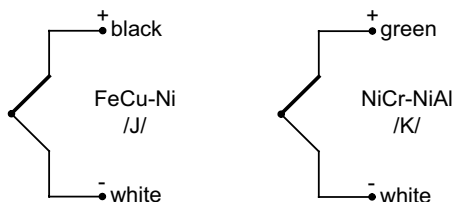


Connection schemes

Pt100 (thermometric resistor)



TC (thermocouple)



In double sensors one of thermocouples is additionally marked out.

Transmitters

Local LED display

